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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michel Foulon

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BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER

SASTRI, SATYA B

ART UNIT

PAPER NUMBER

1796

NOTIFICATION DATE

DELIVERY MODE

05/17/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/584,356	<b>Applicant(s)</b> FOULON ET AL.	
	<b>Examiner</b> SATYA B. SASTRI	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22-47 is/are pending in the application.
- 4a) Of the above claim(s) 31-39 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This office action is in response to amendment filed on 2/22/10. Claims 22-47 are now pending in the application. Newly added claims 40-46 drawn to the hydrotalcite belong to Group I invention where as new claim 47 drawn to a process for preparing the intercalated hydrotalcite belongs to the Group II invention. Claims 22-30, 47 are with drawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claims.

### ***Previously Cited Statutes***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 22-30, 40, 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaminsky et al. (US 7,046,439 B2).

The rejections of claims 22-30 are adequately set forth in paragraph 6 of the office action dated 8/21/09 and are incorporated herein by reference.

With regard to the newly added claims 40, 43, 44 and 46, the prior art discloses hydrotalcites such as  $\text{Mg}_6\text{Al}_{3.4}(\text{OH})_{18.8}(\text{CO}_3)_{1.7}\text{H}_2\text{O}$  intercalated by colloidal inorganic oxide nanoparticles (col. 13, lines 17-21). Additionally, disclosed inorganic oxides include silica of a small genus of oxides (col. 11, lines 45-55).

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With regard to claim 45, as noted in paragraph 6 of the office action dated 8/21/09, the prior art discloses that the inorganic oxide nano-particles have very high refractive index and therefore increase the efficiency of certain surface features such as those designed for collimating light. On the other hand, the nanoclay is disclosed to have refractive indexes lower than that of the polymer and is used to lower the index of refraction of the surface features. Thus, it would have been within the level of ordinary skill in the art to adjust their concentrations to achieve desired surface features. Additionally, the reference teaches that both, the colloidal inorganic oxide nano-particles and nanoclays can change the mechanical and processing properties of the polymer they are in (col. 12-13, bridging paragraph). Thus, it is the examiner's position that the amount of dispersant in the composition is a result effective variable because changing it will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to utilize appropriately effective amount of inorganic oxide, i.e. silica and clay, i.e. hydrotalcite including those within the scope of the present claims so as to produce desired end results, absent evidence of unexpected results.

4. Claims 41, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaminsky et al. (US 7,046,439 B2) in view of Bhattacharya (US 5,246,899).

The discussion with regard to Kaminsky et al. in paragraph 6 of the office action dated 8/21/09 is incorporated herein by reference.

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The Kaminsky et al. reference discloses layered double hydroxides or hydrotalcites as the most preferred layered material and exemplifies hydrotalcites such as  $\text{Mg}_6\text{Al}_3.4(\text{OH})_{18.8}(\text{CO}_3)_{1.7}\text{H}_2\text{O}$  which have positively charged layers and exchangeable anions in the interlayer spaces (col. 14, lines 8-10).

The prior art fails to disclose hydrotalcite having Mg/Al molar ratio within presently claimed range.

Secondary reference to Bhattacharya discloses anion exchangeable hydrotalcites known in the art as having a idealized unit cell formula  $[\text{Mg}_6\text{Al}_2(\text{OH})_{16}]\text{CO}_3.4\text{H}_2\text{O}$  including those having a ratio of Mg/Al in the range of 1.7 to 4 and various other divalent and trivalent ions may be substituted for magnesium and aluminum (col. 1, lines 15-45). Thus, given the teaching on art recognized anion exchangeable hydrotalcites, it would have been obvious to one of ordinary skill in the art to utilize any of the art recognized equivalent and interchangeable anion exchangeable hydrotalcites including those that fall within the scope of present invention with a reasonable expectation of success, absent evidence of unexpected results. In the instant case, substitution of equivalent hydrotalcites requires no express motivation, as long as the prior art recognizes equivalency. *In re Ruff* 118 USPQ 343 (CCPA 1958).

### ***Response to Arguments***

5. In view of the amendment, rejection of claims 23, 24, 26-28, 30 under 35 U.S.C. 112, second paragraph as being indefinite is withdrawn.

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Regarding the arguments on finality of the restriction requirement, as noted in paragraph 2 of the nonfinal office action, a restriction requirement based on lack of unity can be made at any stage of prosecution. The fact that a lack of unity was not indicated in the first stage of prosecution does not preclude a finding of lack of unity at a later stage. The applied standard and the support provided for the finding of lack of unity are consistent with the guidelines of International Preliminary Examination Authority, as stated in the written restriction. As noted therein, the technical feature common to Groups I, II and III is hydrotalcite intercalated by silica. This feature is taught by the prior art to Kaminsky et al. (US 7,046,439 B2) in col. 13-14 wherein it is disclosed that colloidal nanoparticles of inorganic oxide, such as of silica can actually go in between the intercalated clay layers, such as hydrotalcite. Therefore, the common technical feature of Groups I to III, i.e. hydrotalcite intercalated by silica, fails to define a contribution over US 7,046,439 B2. Therefore, the requirement and the finality, both are deemed proper.

With regard to the obviousness rejections over Kaminsky et al., applicants argue that (1) the office has not provided to modify the Kaminsky reference to obtained the compositions of the present invention (2) the office fails to indicate that Kaminsky also teaches that swelling agents may be required to make this happen and thus one skilled in the art would not be motivated to form the specific combination without any motivation to use a hydrotalcite and silica, (3) there would not be a reasonable expectation of success given the entirety of the teachings in Kaminsky does not teach or suggest a hydrotalcite intercalated by silica and (4) only by hindsight reconstruction that one of the numerous layered materials listed by Kaminsky is combined with one of the numerous layered materials listed by Kaminsky.

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With regard to (1)-(3), as noted in the rejections, although the Kaminsky reference discloses a wide variety of layered materials, the prior art also **discloses hydrotalcites such as  $\text{Mg}_6\text{Al}_3.4(\text{OH})_{18.8}(\text{CO}_3)_{1.7}\text{H}_2\text{O}$  as the most preferred layered material** because of the commercial availability of the materials (col.14, lines 7-37). Thus, one skilled in the art would be motivated to select one of the most preferred species taught by Kaminsky, i.e. hydrotalcite.

With regard to the colloidal inorganic particles, **inorganic oxides are preferred**. Additionally, the prior art discloses a small genus of representative oxides including silica, titania, alumina, zirconia, chromia, iron oxide, magnesium oxide, antimony oxide, zinc oxide and tin oxide (i.e. 10 species). **The inorganic oxide can comprise single oxide such as silica** or a combination of silica and another oxide (col. 11, lines 45-55). Given the explicit teaching that the colloidal inorganic oxide nanoparticles can actually go in between the intercalated clay layers and given the teaching that "intercalation shall mean insertion of one or more foreign molecules or parts of foreign molecules between the platelets of the layered material (col. 13, lines 30-37), the prior art obviates the claimed hydrotalcite intercalated by silica. Examiner maintains that one of ordinary skill in the art would have found it obvious to utilize any of the inorganic oxides from the small genus, including silica, in combination with a hydrotalcite which is one of the three most preferred layered materials with a reasonable expectation of success. Furthermore, with regard to (2), it is noted that the present claim language, such as that in claim 22 not exclude swelling agents in the hydrotalcite.

With regard to (4), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention

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was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant's argument is not deemed to be persuasive because the Examiner has only used knowledge which was within the level of ordinary skill at the time the claimed invention was made.

Given that the new rejections set forth above are necessitated by the amendment that deletes the optional language in the newly added claims, the present action is properly made final.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Mondays, Thursdays and Fridays, 7AM-5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. David Wu can be reached on 571-272-1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satya B Sastri/

Examiner, Art Unit 1796